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ARCHITECTURAL THEME STUDY
BUFFALO NATIONAL RIVER

U.S. Dept. of Interior

NATIONAL PARK SERVICE
DENVER SERVICE CENTER

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COMPLETED

ARCHITECTURAL THEME STUDY

BUFFALO NATIONAL RIVER

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U.S. DEPARTMENT OF THE INTERIOR
National Park Service
Denver Service Center
Denver, Colorado

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FOREWORD

In 1918, two years after its formation, the basic policies of the National Park Service clearly stated that park developments must seek a special relationship to the visual environment. During the next twenty years, the NPS defined that special relationship in its "rustic" design ethic. The resultant structures of the 1920s and 1930s varied widely in appearance, but shared many characteristics such as natural materials, small size, historical details, and careful siting. These common elements helped rustic buildings to develop strong visual ties with their settings.

Rustic architecture fell out of favor in national park areas in the decades following 1940. "Modern" structures began to appear, with "clean" lines, new construction methods, and industrial materials. In general, these structures ignored the design philosophies of the rustic era and sought little compromise with adjacent park structures.

Design philosophies have again begun to shift during the present decade. Park managers now realize that visitors should perceive park areas as special, significant places. Park areas provide people with environmental images much different from those in their daily urban environment. Former NPS Director William Penn Mott has expressed a design goal of unified park architectural themes as a way of enhancing such distinctive park images.

Buffalo National River has seen limited development in the years since its formation in 1972. However, present projects and those planned for the near future will bring a considerable amount of new construction to the park. It has therefore become important to establish an architectural theme for future facilities at the national river. The purpose of this document is to define an architecture appropriate for new development work in Buffalo National River. It is intended to assist designers of future facilities as well as those who must review the designs and consider their appropriateness. The study relies on the following traditional National Park Service premises:

1. Architecture in the Parks should reflect the fact that the Parks are special places.

2. Architecture in the Parks should be sensitive to both the natural and the cultural environment of the area.

3. Developed areas in the Parks should have consistent architectural themes.

4. Architecture in the Parks impacts how visitors perceive and use the Park. Good architecture provides a special human environment in which the values of the Park are clarified and reinforced; poor architecture weakens and cheapens the entire Park experience.

BACKGROUND INFORMATION

THE RESOURCE

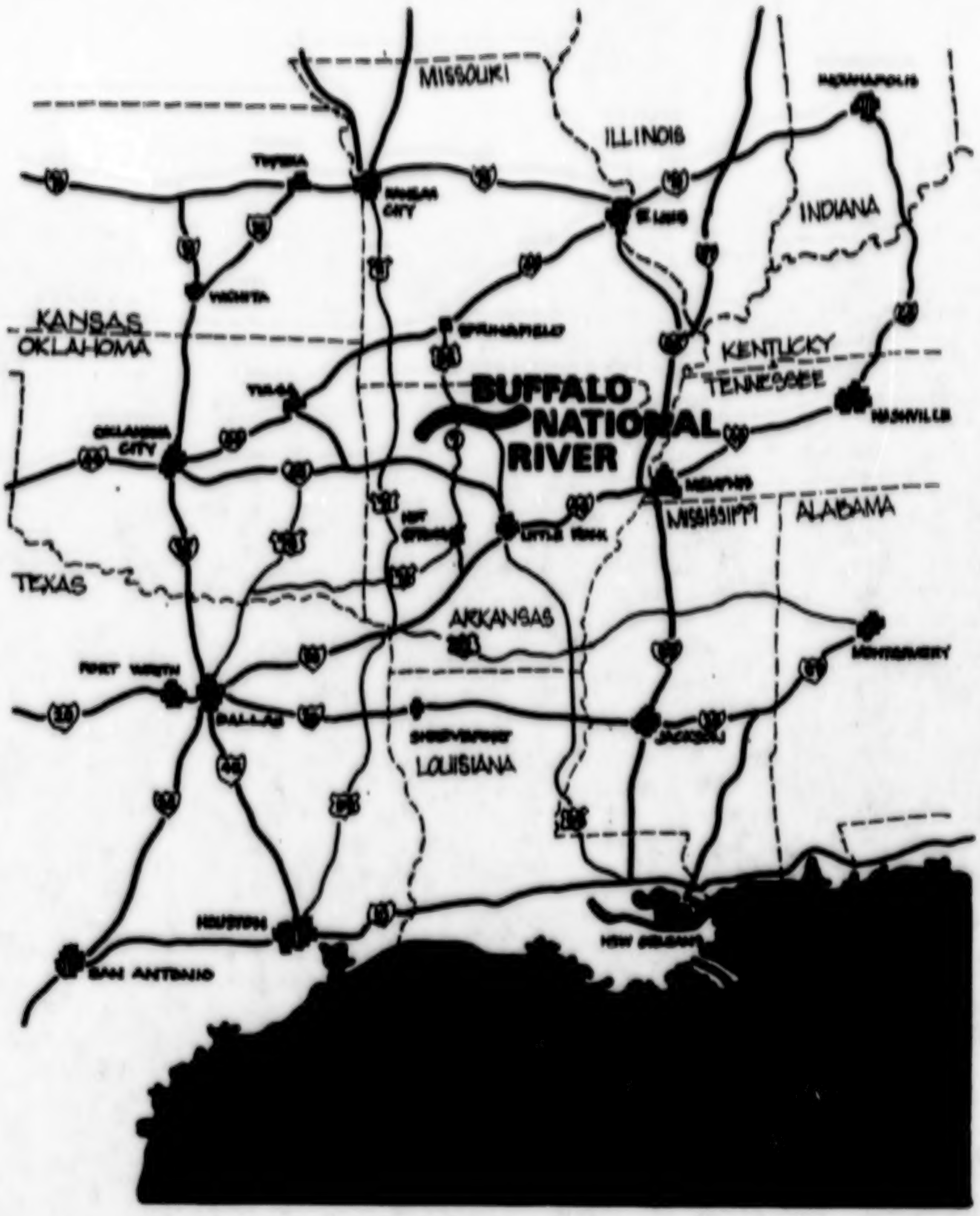
THE RIVER AND ITS SETTING

The Buffalo River is nationally known for its scenic beauty and recreational opportunities. As one of the few remaining free-flowing rivers in Arkansas, the Buffalo still exudes a feeling of unbroken wilderness which has long been lost in other parts of our nation. The clean, clear water surges over rapids, moves lazily through long, shaded eddies, and sweeps gracefully against streaked canyon walls as it winds through the heavily vegetated Arkansas Ozarks. Prominent bluffs, steep hillsides, narrow ridgetops, abundant vegetation, animals, caves, springs, historic structures, and the river itself are the features that contribute to the aesthetic quality of Buffalo National River. Add to this the opportunity to float, fish, swim, and explore in an attractive near-wild setting, and the river valley can be seen yielding experiences of a kind and quality that are becoming rare in urbanized America.

THE WATERSHED

Buffalo National River flows through the Arkansas Ozarks, nestled in a region bounded by the Missouri River to the north, the Mississippi River to the east, the Arkansas River to the south, and the Great Prairie to the west (see Region map, p. 2 and Vicinity map, p. 4). The river drains an elongated basin, 22 by 70 miles, covering an area of 1,338 square miles in the heart of the Ozark Highlands.

The Buffalo River flows from the Boston Mountains on the west to the White River on the east in a 148-mile meandering course through its alluvial floodplain. The river tumbles down 1900 feet, dropping steeply in its upper reaches, then leveling to an average fall of 4 feet per mile in its lower 100 miles before joining the White River at an elevation of only 400 feet above sea level.



REGION

Buffalo National River, Arkansas

United States Department of the Interior / National Park Service

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THE CLIMATE

The climate of the Buffalo River basin is characterized by long, hot summers and relatively short, mild winters. Rainfall varies between 30 to 80 inches and averages 49 inches annually, with 3 or 4 inches each month--except in April, May, and June, which receive 4 to 6 inches each. In spite of this fairly uniform precipitation, runoff varies widely by season and nearly dry river sections are common in late summer and fall, except in the lower reaches. Summer day temperatures are often above 100 degrees Fahrenheit; zero temperatures occur only occasionally; and freezing is confined to late October-late March. Average total winter snowfall is 12 inches; relative humidity ranges from moderate to quite high; tornadoes often occur during spring and summer months; and the growing season is 200 days annually, indicating that vegetative recovery from impacts of construction or overuse would be fairly rapid on good soils.

PLANT LIFE

The Ozark Highlands are considerably richer in plant species than the surrounding regions. Varied slope exposures and altitudinal ranges have provided the requisite habitat. A few species found nowhere else have developed in response to the unique conditions.

More than 40 tree species grow in the Buffalo River basin, falling generally into major forest associations typical of the two general topographic sites:

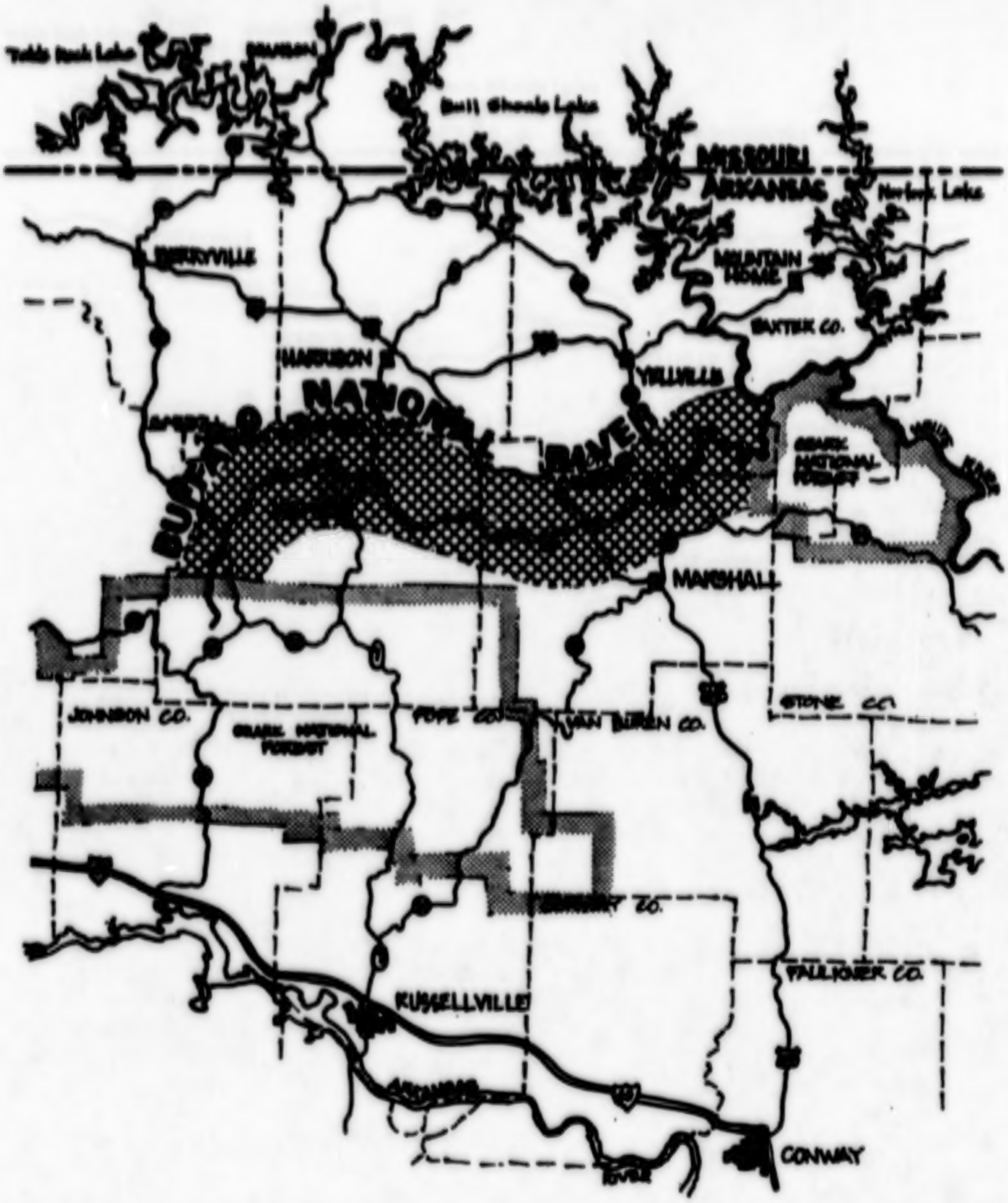
1. Upland Oak/Hickory: comprised of six species of oak and three of hickory, with smaller numbers of winged elm, red maple, sassafras, persimmon, walnut, hackberry, blackgum, shortleaf pine, and red cedar. Richest development is on north slopes and in cool, shaded ravines where beech, linden, yellowwood, ash, magnolia, and sugar maple also grow.

2. River Floodplain: sweetgum, sycamore, willow, elm, river birch, and boxelder.

Special niches are covered with "fernfalls," and in spring redbud, dogwood, serviceberry, and azalea provide fine flower shows. Autumn coloring of the deciduous forests in the area is especially attractive.

ANIMAL LIFE

The wildlife along the Buffalo River is typical of the deciduous forest biome. Habitat diversity, created by various land clearing practices, has actually benefitted wildlife quantitatively and qualitatively.



VICINITY

Buffalo National River, Arkansas

United States Department of the Interior / National Park Service

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Arkansas game animals present in the Buffalo National River region are white-tailed deer, squirrel, rabbit, bobwhite quail, mourning dove, and wild turkey. Furbearers in the area are beaver, opossum, raccoon, mink, bobcat, gray fox, skunk, muskrat, and otter.

Protected species present include the red fox and mountain lion. A number of species like timber wolf, elk, and bison have been extirpated from the region. The black bear and wild turkey were once nearly extirpated species in Arkansas, but they have been successfully reestablished.

The Buffalo River is noted for its smallmouth bass fishing. Other game fish present are the largemouth bass, spotted black bass, rock bass, suckers, catfish, bluegills, green sunfish, and other sunfish. Over 250 species of birds have been reported in the area, including many migratory waterfowl that are seen during spring and fall migrations. Many bat species have also been identified inhabiting the numerous bat caves in the area.

THE CULTURE

HISTORY

The Buffalo River area was sparsely settled by the early 1800s. Hunters, trappers, and traders were lured here by the abundant game. Some lead-mining entrepreneurs were also early residents. Cherokee Indians briefly occupied the area from late 1817 to 1828 on their westward migration from Kentucky to Oklahoma.

The rugged terrain offered limited usable land for settlers interested in farming. Ridgetops are narrow and rocky; low river terraces, although limited in size, offer deep rich soil. A few individuals did begin settling within the Buffalo River watershed during the 1820s and 1830s, clearing fields and raising small herds of domestic animals. Hunting helped the early settlers to supplement their diet and eke out a meager existence.

Limited Civil War activities occurred in the area. Following the war, area residents continued their subsistence living and began to augment their income with cash crops like cotton. The 1903 construction of a railroad from Joplin, Missouri, through Gilbert (a small community on the river only 2 miles east of the present US 65 bridge), and on to Helena, Arkansas, allowed transportation of cash crops and commercial products out of the hilly country to markets in Springfield (Missouri), Eureka Springs, Batesville, and Russellville (Arkansas). Roads in the area were few and inadequate.

The depression of the 1930s and a drought during the early portion of that decade brought hard economic times to the Buffalo River region once again, but subsistence farming saw most residents through this crisis.

Throughout the last 40 years, subsistence farming has characterized the lifestyle of northwestern Arkansas residents. Today, as in the 1830s, the counties of the Buffalo River watershed remain among the least populated counties of the state. Within the last 20 years, economic progress has come to the area--mostly in the form of light manufacturing companies, but also through the construction and development of four large reservoirs.

Regionally, northwestern Arkansas has become a favorite outdoor recreation area where the existing lifestyle remains as relaxed and uncomplicated as it must have been 100 years ago. The frontier or mountain culture, though, has been preserved by some of the native people who continue who continue to follow traditional, self-sufficient, agrarian lifestyles.

HISTORIC DISTRICTS/STRUCTURES

Buffalo National River includes several structures and districts that are on (or have been determined eligible for) the National Register of Historic Places. Three examples are:

1. The Parker-Hickman Cabin/Farm: a full complement of structures dating from 1850 to 1955, including the cabin, barns, granary, smokehouse, privy, poultry house, and machine sheds. Adding to the setting are extant roads, fields, fencerows, springs, gardens, and orchard sites. The cabin is significant because of its age (c. 1850) and the integrity of craftsmanship employed. The half dove-tail-notched cedar log portion of the cabin exhibits workmanship superior to that of most other log structures in the Ozarks.

2. The Boxley Valley Cultural Landscape: a well preserved example of a rural Ozark Mountains valley as it has evolved over the past 150 years. Historically the valley has been a series of small family-operated farms. The historic district is a collection of agricultural fields and significant vernacular architectural features, including the Boxley grist mill.

3. The Rush District: a "mining ghost town that will have historical interpretation and protection" (1975 Master Plan). The district has substantial cultural resources including archeological sites and significant remains from lead and zinc mining operations. Rush is the only mining ghost town in the state of Arkansas.

TRANSPORTATION

US 65 intersects the Middle district and is the major highway through the watershed. Traversing north and south, US 65 links Springfield, Missouri (I-44), 137 miles to the north, and Little Rock (I-30 and I-40), 105 miles to the south. Harrison is 14 miles north and Marshall is 11 miles southeast of the Tyler Bend area--both on US 65 (see Location map, p. 8). The state of Arkansas has proposed a new bridge for the US 65 crossing over the Buffalo River, and construction is scheduled to begin in the near future.

Visitors rely primarily on private vehicles to reach Buffalo National River. Because most visitors come to float the river, motor vehicles are used to make the shuttles required for this experience. Vehicles are also used to transport the equipment used for floating and camping. It is expected that this traditional reliance on private vehicles will continue.

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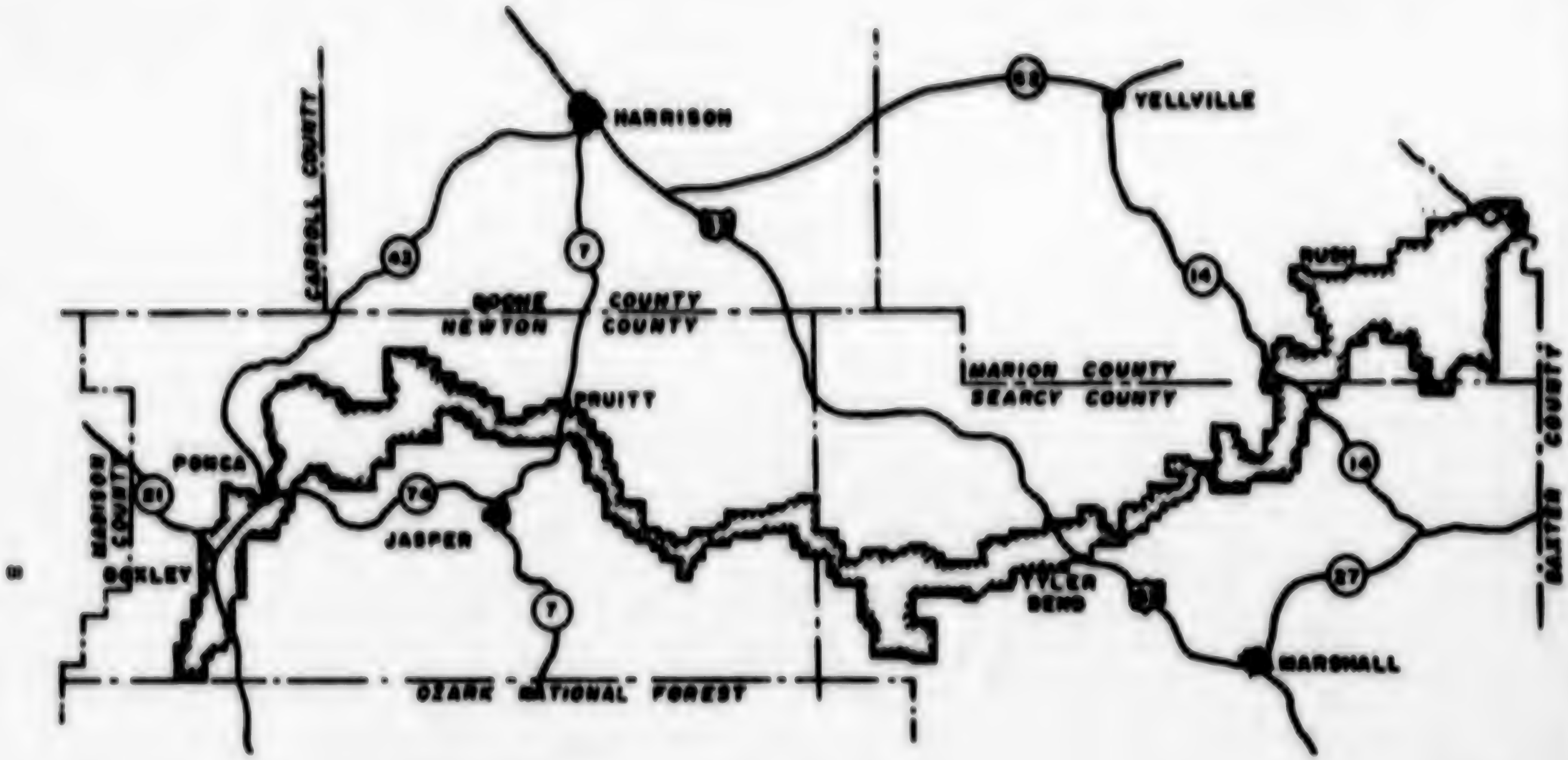

LOCATION

Buffalo National River, Arkansas

United States Department of the Interior / National Park Service

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LAND USE

Subsistence farming has been the traditional land use in northwestern Arkansas. The bottomlands were developed for crops like corn, wheat, and cotton; wooded hillsides were used for grazing cattle, sheep, and hogs. The ridgetops were generally undeveloped because of the rocky soil. Farmhouses were usually located in the bottomland where water was plentiful.

Some small-scale subsistence farming remains, with farmers supplementing their income through jobs in the surrounding communities. The contemporary trend, however, has been a decrease in the total number of farms and an increase in the acreage of the farms in an effort to make farming operations more profitable.

Commercial land use in the area (mainly specialty shops catering to tourists) is concentrated on small acreages along either side of the highways and county roads, wherever the topography is suitable for development. Interspersed among local residences are a small but growing number of vacation residences.

ECONOMIC DEVELOPMENT

Three basic factors contribute to the district's economic well-being: agriculture, light manufacturing, and the leisure industry. Farm income is derived from livestock operations producing cattle, hogs, or poultry; dairy operations; apple orchards; and feed and food grain crops. Major industries in the region include food processing, wood products, apparel, and electrical and plastic manufacturing.

Buffalo National River, Ozark National Forest, and 4 large reservoirs have made the leisure industry the fastest growing segment of the local economy. Tourism has been enhanced by numerous commercial attractions, including Blanchard Springs Caverns and the Ozark Folk Center. The mild climate and scenic beauty of the Ozarks has attracted an increasing number of retired persons to the area.

THE VERNACULAR ARCHITECTURE

Past and present vernacular forms of northwest Arkansas architecture have a very basic and conservative origin. The crude log dwellings of the anglo pioneers who began to settle in the area in the 1830s reflected agrarian, self-sufficient lifestyles.

The pioneers of the Buffalo River basin usually built one room or "single-pen" log cabins, later adding shed rooms or shed porches to the basic floor plan as needed. The domestic buildings were later accompanied by a complex of outbuildings such as animal houses, storage sheds, and machinery sheds. Barns, churches, and store fronts later contributed to the vernacular architecture of the region.

METHODS AND MATERIALS

The availability of materials heavily influenced the methods of construction, for the early settlers relied solely on local materials. Most structures were of hand-hewn log wall construction, with chinking consisting of mud, rocks, and small sticks filling the gaps between the logs. Notching was used to connect the log walls at corners and intersections. Saddle and square notching were common to the area, but examples of many other types of notching, including dovetail and "V" notching were also to be found. Notching quality and attention to detail often reflected the ambition or craftsmanship of the builder.

The abundance of native oak, hickory, and ash in the area provided ample building materials for the early log structures. As it became available, sawn lumber replaced hand-hewn logs as the principal building material. The native hardwoods were later traded for species such as pine and fir, which were used in frame construction.

Siding was often rough-sawn planks or board-and-batten. Oak siding was often used (it was put on green to prevent splitting). More refined siding materials were used as they became available. Early roofing material was commonly white oak shake shingles; later corrugated tin became popular. Some locals say the use of white oak shingles declined because the native white oak was exported to Kentucky to be used for whiskey barrels.

Native stone foundations, fireplaces, and chimneys were common features. Flat stones were stacked dry to support joists and sills. Chimneys were often faced with flat stones laid vertically. Round, smooth river rocks, despite their availability, were not often used in foundations or chimneys as in the western states. Most stonework in the area had crude clay mortar with flush joints. The mortar was also used in parging the insides of fireplaces and chimneys, sometimes with chips of rock salt added, which was said to reduce the danger of flue fires.

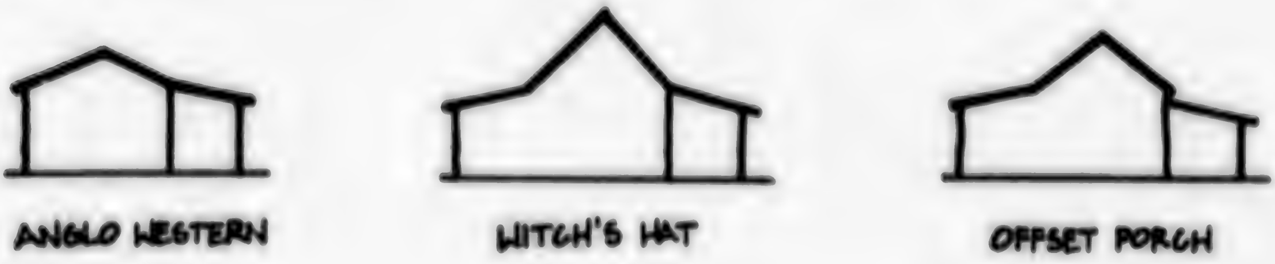
ELEMENTS

Although building designs, construction methods, and materials evolved through the years, several elements or features remained common to the vernacular architecture of the Buffalo River basin. Some of these elements or features identified by this study are as follows:

1. Functional layouts with basic, rectangular floor plans
2. Simple, symmetrical forms with basic gable or broken gable roof lines
3. Local materials--wood frame construction; wood siding; native stone fireplaces, chimneys, and wall facing; wood shingles or metal roofs
4. Add-on rooms, lean-to sheds, and porches
5. Roof vents for natural ventilation

FORMS

The length of the logs controlled the early building forms and dimensions. A sixteen to twenty foot log often was the factor in determining the room configuration and the square footage. The roof profiles were generally simple gable shapes with a few basic variations.



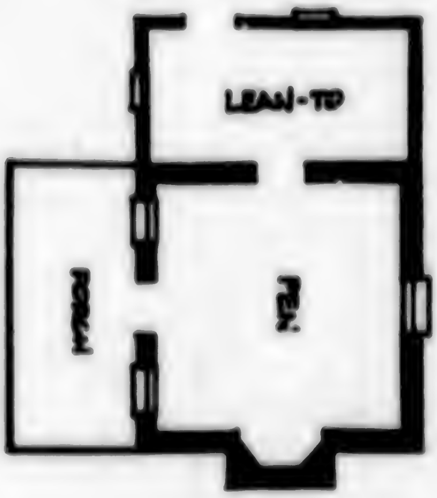
ROOF PROFILES

Over the years, variations of the basic single-pen floor plan evolved. The following pages will discuss and illustrate many basic types of vernacular building forms common to the Buffalo River basin.

The Single-Pen

The single-pen log house consisted of logs laid in a rectangle, one upon another, horizontally, and notched at the corners. This form of dwelling and construction method is a very ancient form of European design. The form varies little from the basic single-pen rectangle construction, but the attention to well-formed joints and their design often expressed the quality of craftsmanship that the area once had.

A typical mid-to-late 1800s northwest Arkansas log cabin was of one-story single-pen construction. The cabin was built of hand-hewn square logs joined with square notches and was supported by a rock and rock pier foundation. The gable area was covered with vertical wood planks. The roof was raftered without a ridge pole. Interior lumber was rough sawn and interior chinking was covered with wood planks. A native stone fireplace and chimney anchored one side of the cabin; a board and batten lean-to shed was added to the other side. A timber frame porch defined the main entrance through the front door.

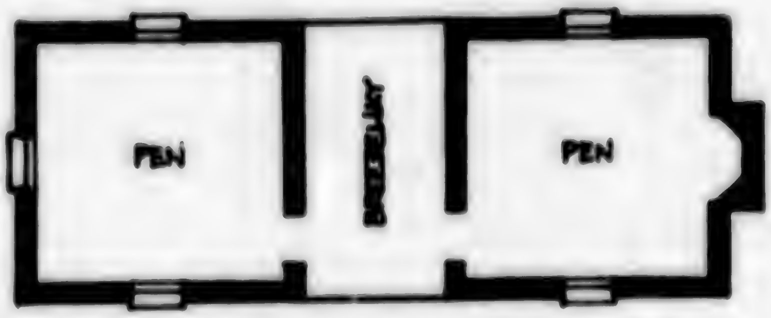


SINGLE-PEN PLAN

The Dog Trot

The "dog trot" log cabin was essentially two single-pens of uniform size connected by a common breezeway. The first pen was usually constructed first; the second pen was added later along with the space between the two. A native stone fireplace was common at one or both sides of the cabin, as were the added on sheds and porches of the single-pen log cabin.

The dog trot proved to be a very useful and practical building form for the early settlers. Frame constructions later continued to utilize this form as more refined building materials became available.

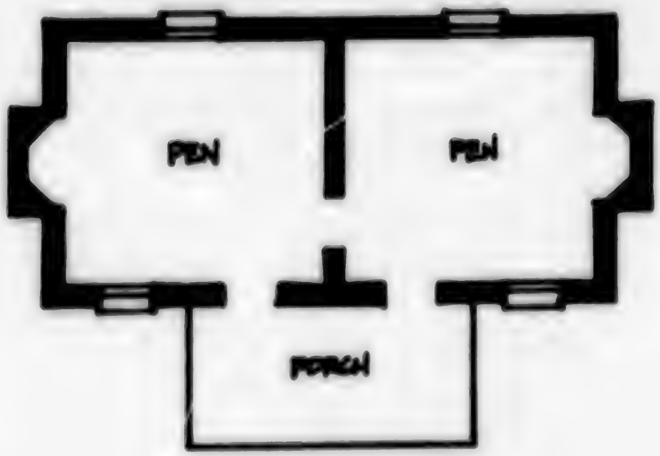


DOG TROT PLAN

The Double-Pen or Duple

After using the dog trot form for many decades, residents of the area realized that the breezeway was not an important requirement of the structure. The not-very-wealthy builder could not afford the extra material for the hallway between the rooms. The "duple" was thus born as a simple double-pen log structure with the rooms (pens) separated by only a log partition.

The double-pen cabin usually featured an exterior front door entrance for each pen. Duples in the area also usually had native stone fireplaces located either in the center of the structure or at one or both sides. This form of domestic structure was very common during the mining boom of the 1920s.

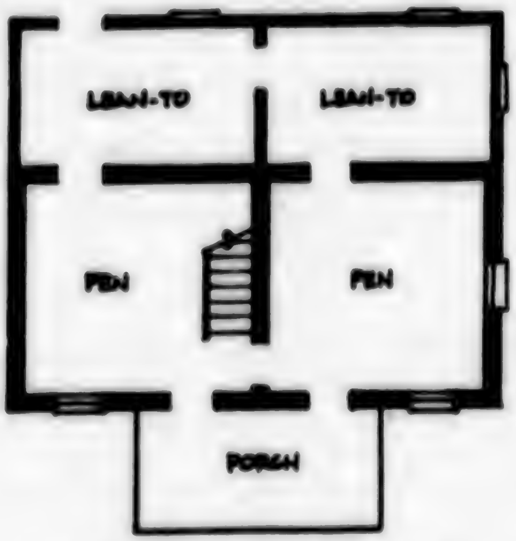


DUPLE PLAN

The 1 1/2 Story Duple

The 1 1/2 story duple was a double-pen log structure with a fireplace in the center serving both rooms and a stairway to one side leading to the upper story. This building form was initially built out of rough-hewn timber and logs; later, as in all the forms, other materials such as brick and clapboard siding led to more refined structures.

The duple form emphasizes the symmetry which is inherent in all of the vernacular building forms of the area. Usually present in the front facade were two doors, often flanked by windows to either one or both sides. The front facade was always left intact when additions were made to the side or back as the family expanded and needed more space.

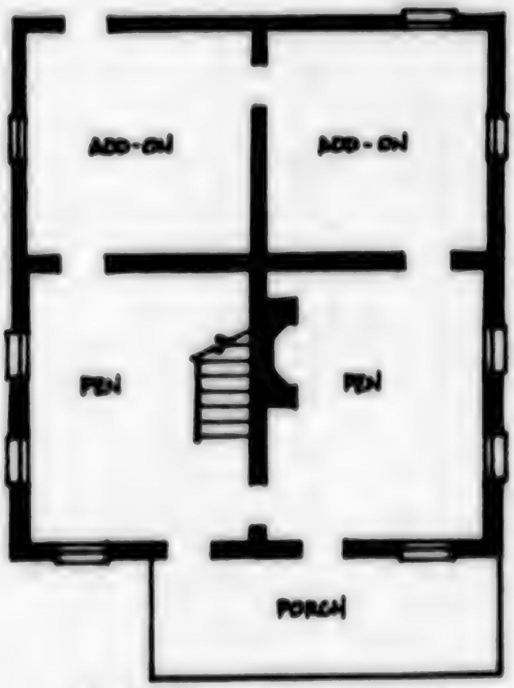


1½ STORY DUPLE PLAN

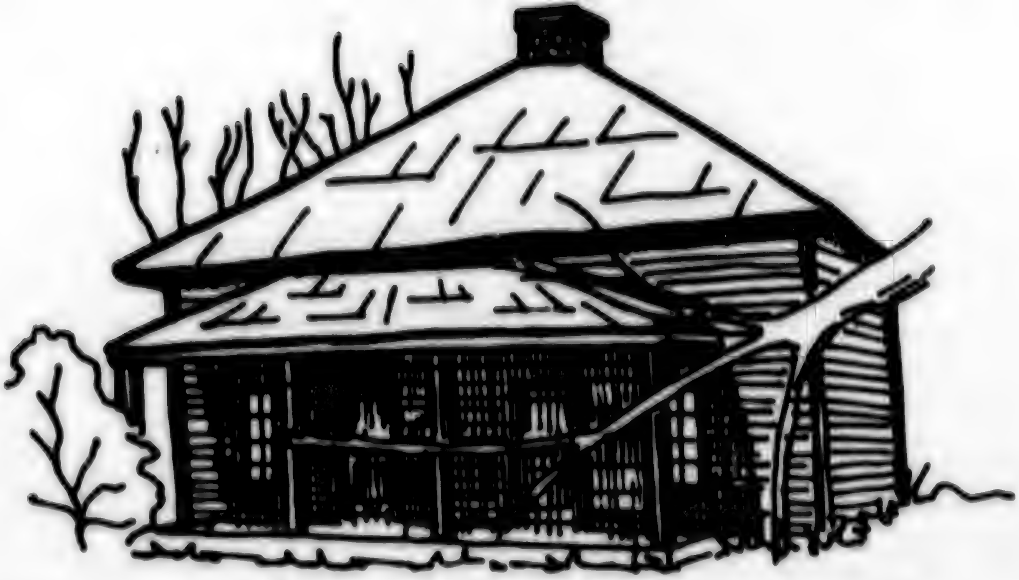
The Craftsman Duple

The "Craftsman Duple" is a building form that has two entry doors in the front facade indicating a carryover from double-pen construction of log cabins. This form is unique in that it is entered from the gable end and often has a gable-end porch centered over one of the doors to indicate the main entry into the house.

Many craftsman duples were originally basic duples constructed of logs and were later extended to the rear and covered with milled or beveled siding. With the extension to the rear, the house became deeper in length than its entry facades width, and the roof line changed to follow the extended depth. This building form became popular in Northwest Arkansas in the early 20th century.



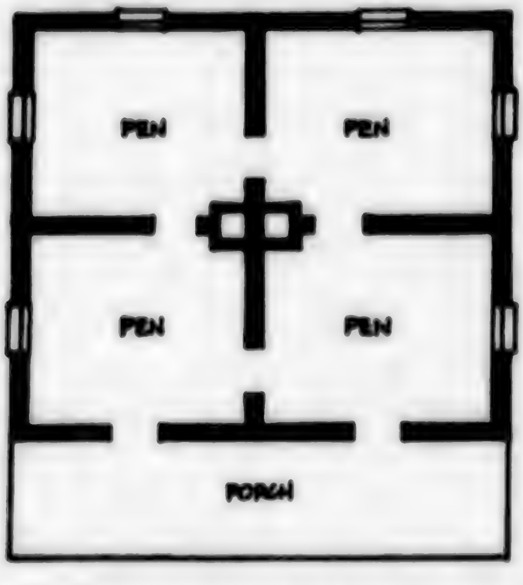
CRAFTSMAN DUPLE PLAN



The Four-Pen

The four-pen house, sometimes called the "gum drop" house, is a square four-room structure protected by a single steep pitched pyramidal roof. Low, full-length front porches and chimneys protruding from the peaks or one of the sides are common features. Two doors are usually at the front and entrance to the house can be through either, leading into the two front rooms. There is no hallway, only passage from room to room.

Four-pen houses in the area are generally of frame construction with horizontal wood siding and corrugated tin roofs. Gum drop houses emphasize the symmetry of vernacular forms of the region. This form is somewhat less common than the other vernacular forms in the Buffalo River Valley, but its proliferation in other parts of the Ozarks make it important to Arkansas' architectural heritage.

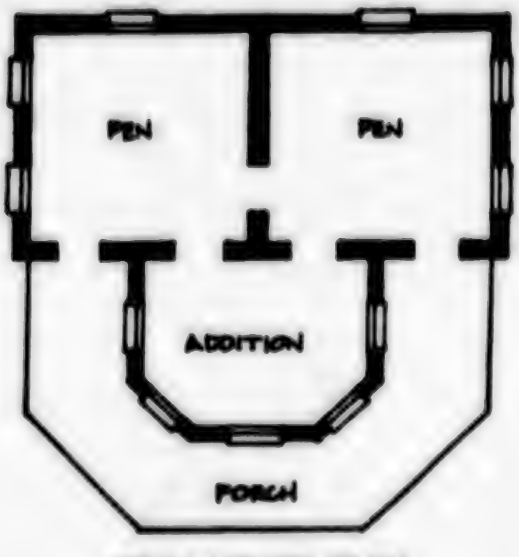


FOUR-PEN PLAN

The Prow House

The "prow" house has been so called because of its resemblance to the prow of a large ship. The form is basically a duple with a central front addition encircled by a porch. Doors and sometimes double-hung windows flank both sides of the central front addition or prow. Prow houses evolved as homeowners searched for a change from the standard additions to duples or dog trots.

Typical prow houses are of frame construction with wood siding. Homeowners would often update and ornament their homes with turned columns and intricate jigsaw work around the encircling porch. The corners of the prow were at times beveled and double-hung windows were often incorporated in these beveled corners and/or the front and sides. This form is almost always symmetrical in composition.

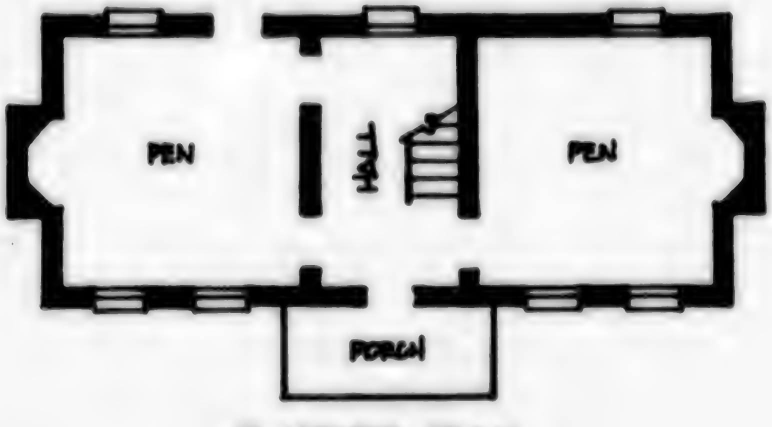


PROW HOUSE PLAN

The "I" House

The "I" house is a two-story, four-room structure with an enclosed central hallway, a central porch, and usually a fireplace at both ends. The central hall is represented by a door, often with side lights and a transom to allow natural light to penetrate the windowless hallway. The "I" house, which first appeared in the area in the mid 19th century, took its name from its shape in plan, which looks like the letter "I".

The central hallway provides space for a stair to the second story; when the central hallway is removed, the stairs are tucked into a corner of one of the rooms. Removing the central hallway thus forms a two-story duple, and two doors are necessary in the front porch to gain access to each adjacent room. "I" houses were commonly frame construction with wood siding or brick; the use of brick and the two-story height was considered a symbol of affluence.

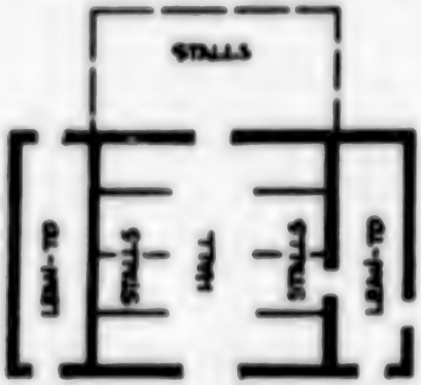


I-HOUSE PLAN

The Barn

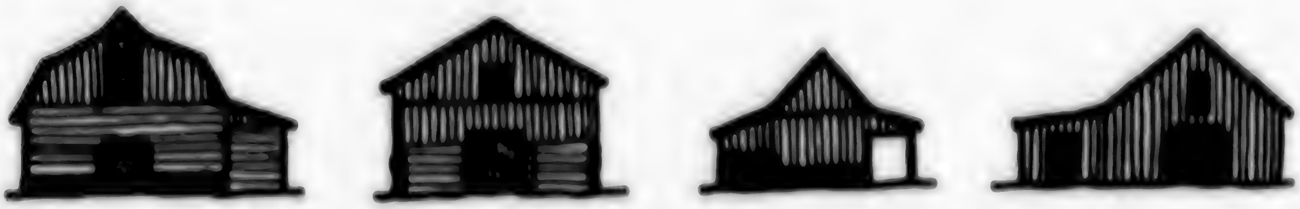
Because farming was the major means of existence for most residents of the Buffalo River Valley, the barn was a very common architectural vernacular form in the region. Barns met a very functional need for farmers by housing their livestock and storing their hay and feed. The types of barns in the area ranged from the simple and rudimentary to the elaborate and more imaginative based on material availability and the farmer's economic level and personal whims and energies.

Common barn plans are organized as a rectangle having a central wide hallway with stalls opening to the sides. This plan evolved from the "double crib" plan, which was similar to a large, two-level dog trot. Examples of "four crib" barns, four "cribs" separated by perpendicular central breezeways, were also found in the area. Often the barns had sheds added to the sides, outdoor stalls added to the back, and hay storage on the second level.



BARN PLAN

Roof forms varied from plain gables with shed additions under the lower eaves to gambreled, semi-circular, or hip forms. A broken gable form with half-roofs at lower pitches over the shed additions was common. Many barns in the area featured roof vents and/or large openings on the front facade over the main entrance for hoisting hay bales to the second level.



BARN FACADES

Early barns were of log construction, many with pole foundations; later examples utilized timber construction with stone foundations. Horizontal and/or vertical wood siding was generally used to enclose the structure, although some barns used exclusively for hay storage had no siding, exposing their timber framework. Common roof materials were wood shingles and later corrugated tin.

BUILDING DESIGN GUIDELINES

INTRODUCTION

The following design guidelines are for future facilities at Buffalo National River. These guidelines address how future designs may draw upon principles of the rustic design ethic of park architecture and interpret those principles with a cultural theme. Rather than impose stylistic rules, these guidelines seek to offer suggestions and alternatives in an effort to embody those principles in a unified architectural theme for Buffalo National River. Albert Good wrote words in 1935 that still seem appropriate today:

> The structures necessary in a park are naturally less obtrusive if they are reasonably unified by a use of one style of architecture, limited construction methods, and not too great variety in materials. [Park Structures and Facilities, p. 6.]

The foremost objective of these guidelines is to encourage creative design of buildings that are sensitive to their natural setting while successfully performing their intended park and/or public related functions. The structures should not be overly sophisticated nor should they create a sense of human domination over the landscape.

Additionally, new designs need to be responsive to present-day philosophies, methods, and materials while reflecting the basic themes and approaches of the past. To copy architectural features purely for the sake of mimicry is not what this guideline intends. The designs should draw from the best elements of the architectural vernacular of the area without impinging upon the buildings' primary functions.

If all of these objectives can be successfully fulfilled, the resultant structures should be buildings that the National Park Service and the local community will be proud of.

ENERGY/CLIMATE

In 1980, the U.S. Department of Housing and Urban Development printed a document entitled "Regional Guidelines for Building Passive Energy Conserving Homes". The concepts in this publication can be easily adopted to structure types other than residences.

The report summarizes its design recommendations given this climatic region:

1. Keep the sun out when it's too hot for comfort. Orient the length on an east-west axis to avoid summer baking and allow winter heating. Shade southern exposures from the summer sun with deciduous trees and appropriate roof overhangs. Use light colored roofs and walls to help reflect sunshine.

2. Allow winds to ventilate when it's too hot for comfort. Maximize air movement around and through the building. Elevate the structure to allow air movement beneath, reducing both heat and humidity. Vent the attic or the roof space. Consider cross ventilation in floor plans and outdoor shaded areas for summer use.

3. Avoid creating additional humidity which might cause discomfort. Do not place plants or pools in the sunshine or in the direction of the prevailing winds since this will add humidity to the incoming air. Ventilate kitchens, baths, and laundry rooms in order to exhaust humid air.

4. Let the sun in when it's too cold for comfort. On winter days, let the sunlight in for daytime warmth and passive nighttime heating. Proper orientation lets the warming winter morning sun in and keeps the hot afternoon sun out.

5. Avoid infiltration of cold air when it's too cold for comfort. Let the wind pass over the house by building into the side of a hill. Plant or build barriers on the windy side. Use garages, storage, and other buffer spaces for wind protection. Control drafts and infiltration by adding shutters or airtight curtains.

6. Keep cold temperatures out. Insulate from the winter cold by building compact floor plans, insulating walls, and carefully using window areas to minimize heat loss.

By incorporating some or all of these recommendations, an energy efficient structure can be designed for this region.

SITE CHARACTER

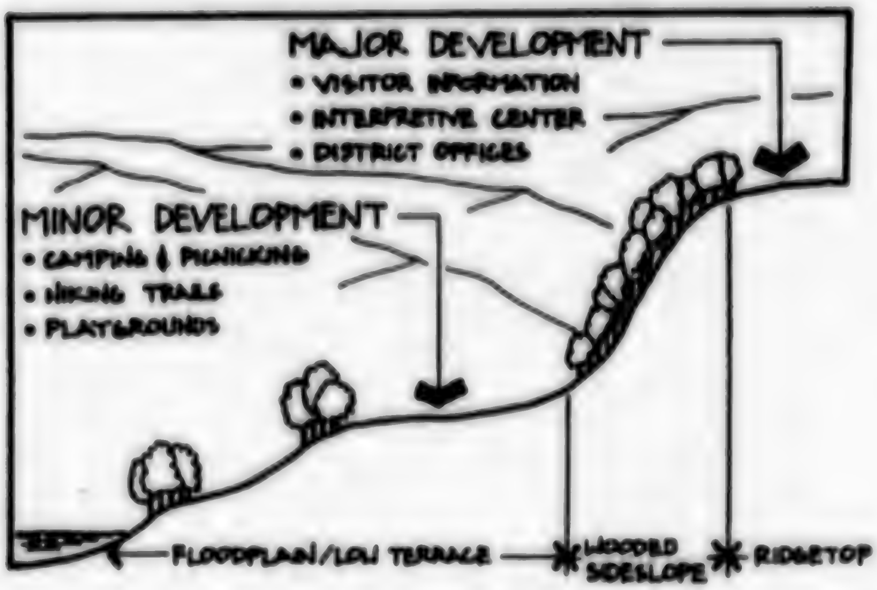
NATURAL SETTINGS

The natural landscape is a critical resource at Buffalo National River. New development in the park must protect the landscape while it enhances the visitor's enjoyment of nature, never detracting from the sense of place that is the basis of the River experience. An appreciation of the Buffalo River's natural landscape settings leads to an understanding of how to site buildings within the national river.

WORKING WITH THE SITE

Buildings are an intrusion into the natural environment. Consequences of this intrusion affect both the integrity of the site and the visitor's enjoyment. It must be remembered that in the national river, the highest priorities are protecting an irreplaceable resource and exposing the visitor to the surrounding natural environment without creating harmful intrusions. If the environment is harmed or if the visitors are separated from the outdoors, the main purpose of the park will be defeated.

Siting buildings within the national river should be done according to the approved development concept plan for the area (see Bibliography). The existing land profile and the flooding characteristics of the river also limit siting options.



LAND PROFILE

Within the given parameters, however, structure siting may still significantly impact the natural landscape. An understanding of the forms, textures, colors, and scale of the landscape will provide necessary information for the design of a non-intrusive structure. The designer should relate the building and its parts to these basic elements.

Within a given natural landscape setting, look for the amenities of the site. Such places have a very special sense of space, view, feel, or landscape feature. Buildings should never occupy and hence eliminate a site's best parts. They should be placed in secondary positions in relation to natural features such as stands of trees, geological formations, creeks, and lakes.

Buildings can be placed near the edge of natural features. Here the building can overlook the best open area of the site, though ample transitional space should be allowed between the natural and man-made features.

The site must be assessed for its capacity to absorb new construction. The integrity of the natural landscape should regulate the density of development. Buildings should be seen among tree masses and geological features as integral parts of the natural scene. The process of site grading and the design of the building setting should not ignore but reinforce the character of the existing land.

OUTDOOR SPACES FORMED BY BUILDINGS

Outdoor spaces created by buildings should always direct the viewer's focus to the natural world of the river. The natural setting must dominate any building site. Buildings can be sited in ways that create wonderful outdoor spaces, enhancing rather than detracting from that setting.

The outdoor spaces formed by buildings are as important as their interior spaces. Outdoor spaces make a transition between the activity within the building and the exterior natural environment. Visitors spend considerable time in outdoor spaces adjacent to buildings relaxing, eating, or waiting for others.

The outdoor spaces adjacent to buildings are affected by them in several ways. Buildings may protect spaces from winds, snow, rain, or summer heat. In a shaded, cold setting, buildings may be configured to allow warming sunlight to penetrate or be reflected into the outdoor spaces. The configuration of buildings around outdoor spaces can also focus and open up views into the natural environment. Outdoor spaces may draw people out from indoors, or provide a point of interest for people sitting indoors.

Active outdoor spaces such as dining or entry/waiting terraces should feel inviting, not intimidating or impersonal. Explicit edges such as terrace walls, benches, outer building walls, or porches give people defined and comfortable places to stop and sit. Keeping these active spaces relatively small contains and invigorates their activity.

Outdoor spaces that are more passive in their activity and less frequently used may be larger in size and less tightly and formally defined. They may blend into the landscape without the need for containing edges.

In general, opening up a building's interior spaces to its adjoining outdoor spaces opens up the building to its natural setting. The arrangement of visitor circulation, windows, and doorways can bring views, natural light, and the sounds and smells of the surrounding natural environment into the interior.

APPROACH AND ACCESS

Access and entranceways should work with the land and its features. Stands of trees, rock bluffs, and distant views when incorporated into the arrival sequence prepare the visitor for his arrival to a building that is part of the river setting.

When the approach and access is shared by service and visitor vehicles, the service access should be separated as quickly as possible. If separate access for each function is possible, give them maximum separation using landscape screening.

When buildings are not visible from the access turn off, it may be desired to announce the building with a gate, signage, or shelter. Care should be taken that signage harmonizes with the setting, and with the character of the building or area it is identifying. Signage should never be a dominant element. Signage is discussed in greater detail in the National Park Service Sign Manual (see Bibliography).

OVERALL BUILDING FORM

SHAPE

In the national river the shape of buildings should not be in competition with the natural landscape. Buildings are the intruders; their shape and form should distract as little as possible from one's enjoyment of the natural setting.

Buildings should have a horizontal emphasis. Vertical elements such as native stone chimneys, and major wall openings are secondary elements which may be used to lend visual counterpoint.

Plan shapes should be simple rectangles that lead directly to simple roof shapes. The gable or broken gable roof shape would seem appropriate given its dominance in the vernacular architecture of the region.

Buildings in proximity should generally be consistent from building to building. They should work together to create an environment in keeping with their natural setting. They should not tend to stand out from each other or from their natural settings.

MASSING

The size of buildings must not overwhelm or dominate their natural settings. It must reflect a balance between functional requirements and the capacity of the site to accommodate the buildings.

When several functions must be combined under one roof, there are several ways in which the apparent mass of a building can be diminished:

1. Placing the upper floors of the building within the roof as attic floor, with dormers and/or gable windows for view, light, and air can make what would otherwise appear as a 2 or 3 story structure appear like a 1 or 2 story structure.

2. Offsetting or bending a large building in plan and roof form can break up its apparent bulk, giving the building a sense that it was created out of a variety of smaller masses.

3. Building elements that project out and perhaps surround portions of a building such as porches, raised terraces, and large fireplace chimneys may serve to break up the scale of a large building.

4. Breaking up the profile views of large buildings by placing them against tree masses or other natural landscape features is helpful in reducing their apparent size and bulk.

SCALE

In the Ozark mountain setting, buildings should have a scale that allows them to stand with, but not overpower, the heavily vegetated rolling hills. To achieve the proper scale, the designer may want to consider overscaling some of the major building components. Elements such as columns, beams, rafters, and trusses should not be sized by engineering criteria alone. Their visual character should be appropriate to the emotional and aesthetic qualities of strength and protection suggested by the natural surroundings.

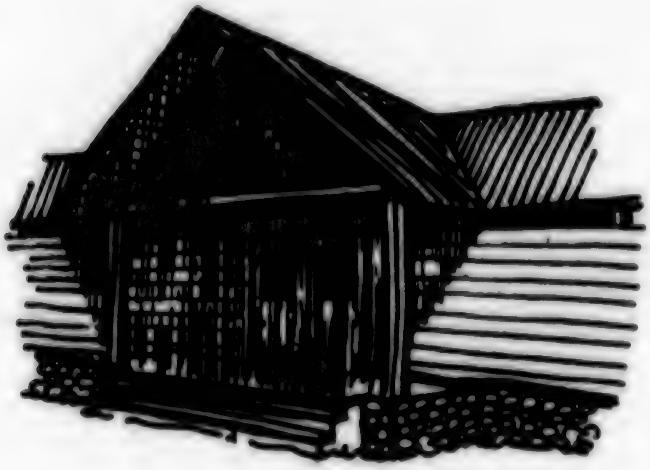
This attention to the size and scale of a building's components will enable it to take its place as part of the ensemble in the natural landscape. Chimneys and porches should be carefully scaled because they are special opportunities to give accent and scale to the building. Overscaled building elements can also diminish the apparent size of a building.

BUILDING ENTRANCE AND PORCHES

The entrance is a visitor's most tangible experience of the river's landscape in relation to its buildings. It is where the river's natural setting merges with and then gives way to the building and its interior. The design of the entrance shapes one of the more subtle yet impressionable experiences that a visitor has in the park.

The building entrance is the place where a visitor is on foot, sometimes having just gotten out of a vehicle for the first time in the national river after a long drive. The entrance is also where the visitor comes into intimate contact with a building's outer form and materials.

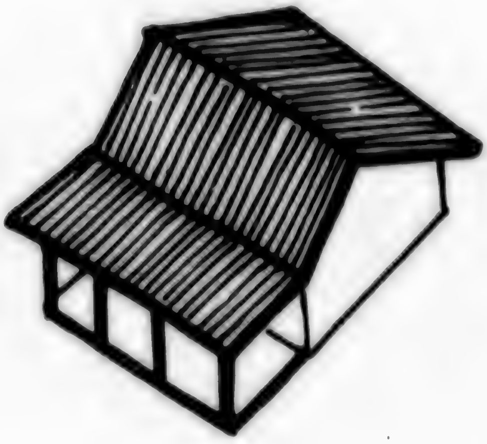
The entrance sets the stage for what the visitor experiences both within the building and back out in the park upon leaving the building. A building entrance signalled by a strong, simple roof of appropriate scale and materials will give the building a strong character. For example, a projecting gable roof framed in timber rafters and beams, supported by columns of sawn timber immediately portrays a strong sense of shelter and vernacular identity.

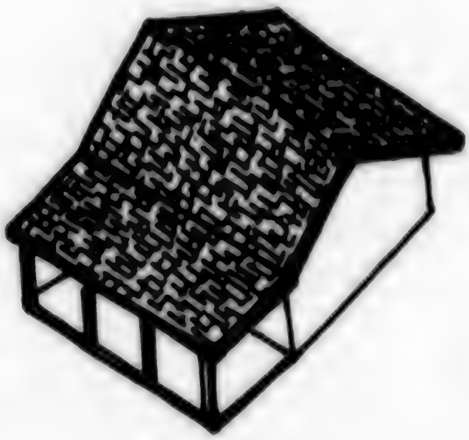


The size of an entrance area and its protected cover must be adequate for such activities as vehicle loading and guest waiting. Functional and convenience equipment such as telephones, vending machines, etc. should be integrated as essential design requirements, receding into alcoves, so as not to distract from the overall character of the entrance.

ROOF

The roof is the element of the building that most immediately and forcefully establishes the theme of shelter, the primary characteristic of vernacular buildings. Historically, simple roof geometry has been used in the Buffalo River region--the gable or broken-gable roof is a basic element of most structures in the area. Complicated roof forms and shapes might seem out of place in this environment.





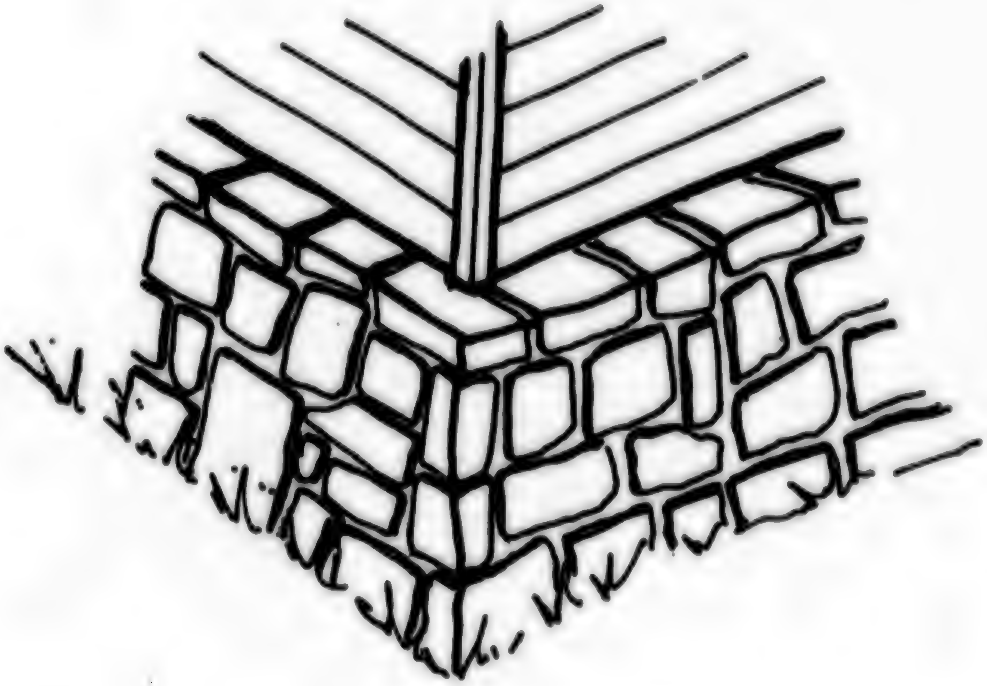
Scale, texture, and weathering characteristics should be considered in selecting roofing materials. Wood shingles and shakes were used by the early settlers in the area; corrugated metal was common in later years. Both materials have been used in recent construction in the national river. If metal roofing is selected, it is important that the chosen material blends with the environment. For example, non-painted, non-reflective, zinc alloy metal roofing that weathers to a medium grey blends much better than painted metal roofing. (See "Architectural Details and Color" for a more detailed discussion of exterior finish colors.)

FACADES

PROTECTED LOWER WALL

Many traditional buildings in the area have a native stone foundation and/or lower wall or wall facing. This stone base protects the wood wall from surface moisture and the resultant staining. This element of vernacular architecture is still valid in contemporary building where most wood siding starts at the ground level.

Common height of the stone work varies from about 36 inches above grade, reaching to the window sill, to sometimes the full wall height. The stone should be scaled properly for the building. Jointing with recessed mortar can give a sharp definition and shadow line to the stone work.



FACADE COMPOSITION

In vernacular buildings, the facade contributes to but does not overwhelm the building's mass. The facade is strong yet simple so as not to detract from the roof and the ground. Unlike outer walls in urban buildings, the front facade is not necessarily the dominant element of the building.

A vernacular building seems rooted in the earth. The building does not sit lightly nor float upon the soil. The native stone lower wall and the fireplace chimney are elements that can make the wall seem to rest squarely upon and derive from the earth.

A change in wall materials from stone or concrete to lighter materials such as wood boards or wood timber may occur at a point between the ground and the roof. As the wall ascends, heavier, earthbound materials give way to lighter materials that appear to take on the task of supporting the mass of the roof. This facade transition creates a generally horizontal emphasis in the walls.

The wall should be significant as the boundary between the interior and the natural setting outside. Openings should occupy only a minor proportion of the facade's wall area. They reinforce rather than trivialize the sense of enclosing walls. Protected openings also highlight the transition from interior to exterior spaces. Wall openings reflect the scale of the interior spaces. Public rooms that enjoy views or lead to exterior spaces may have relatively generous openings, while room for administrative or private functions may have modest openings.

Where signage is required, it should be designed as an integral part of the facade. The quantity of signs should be limited--thoughtful placement can minimize their number. The graphic work should be in scale with the adjacent elements of the building and be appropriate to its location. Signs should be in character with the scale and materials of the building. For instance, a wood, bronze, or stone sign would be far preferable to a backlit or neon sign.

WALLS

Vernacular buildings utilize wall materials that weather. Rather than having a painted or finished exterior indifferent to the elements, weathering materials respond visibly to the effects of sun, rain, wind, and snow.

Careful choice and location of materials can minimize staining of the facade and extend its life span. For example, unprotected, unpainted woods on lower walls become grey and crack when exposed to falling, wind-driven rain and thawing snow. However, these same woods become an attractive deep brown when placed where they can be protected by overhanging roofs. Stone and concrete, on the other hand, tend not to show the differences in their encounters with driven rain and thawing snow. This makes stone and concrete prime candidates for unprotected, lower wall locations.

Future structure designs in the national river, like the vernacular buildings in the area, may want to utilize a limited variety of materials. Two suggestions are as follows:

1. Native Stone: Rocks laid in a battered configuration create an impression of stability, with larger rocks to the bottom and smaller rocks to the top. Walls of rounded river rocks, though, may appear decorative and create an impression of instability.

2. Wood Siding: Board widths should be carefully considered for scale. Horizontal wood boards may be rough sawn and have a thickness creating an appropriate shadow line where the boards overlap. Vertical boards may be laid flush, overlapped, or battened. Battens cut from thicker stock produce deeper shadow lines that may work well on some facades. Trim pieces fabricated from thicker stock may enhance and give special scale and quality to the wall facade.

WINDOWS

Arrangement and form of windows are related to both the interior and exterior of the building (see Facade Composition). Window pattern and cut-up are the elements of the building through which the outdoor environment is seen. The scale and pattern of the cut-up establishes a visual screen. From the interior, the window pattern is the reference of enclosure for the occupant. Seen from the exterior, this pattern can establish the reference of human scale and rhythm for the building.

The established window pattern in the area emphasizes symmetry. Designers may choose to draw upon this idea of symmetry and rhythm in future window pattern designs. The scale of window openings is also important. Window openings that are too large in scale may take away from the apparent strength of the wall facade.

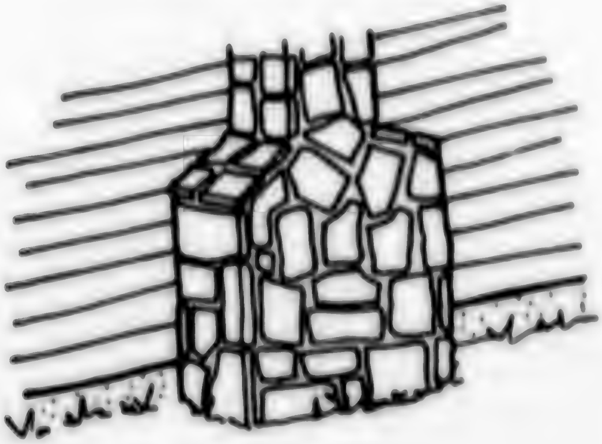
DOORS

The entrance door is a crucial element in the experience of a building not only because it controls access to the building but also because passing through a handsomely designed door can be a special experience in itself. Overscaling, moldings, frames, paneling, and hardware are details that can give the door character.

Exterior doors should be protected from the elements by recessed alcoves or porches. A weathered, unfinished door imparts a strong vernacular character. Finishing a door with paint or clear sealant can also make the door a special accent. The treatment should be appropriate to the location, character, and use of the building.

ARCHITECTURAL DETAILS AND COLOR

Responding to the necessities and economics of the environment, Buffalo River region architecture emphasizes simple, functional massing and shapes. There is still opportunity, however, for detailing of functional elements that can contribute variety and interest to the building. Chimneys, exposed roof framing, beams and brackets, columns and connections, and stairs all provide opportunities to create a building that is both visually satisfying and environmentally appropriate.



Treatment of exterior surfaces should always take into account the natural changes of the environment that take place on both a daily and a seasonal scale. Changes in moisture levels, light conditions, and foliage color all affect the built as well as the natural environment. In general, natural materials such as wood and stone respond to such changes in the same way that the environment does, and should be emphasized.

When materials such as metal or concrete are used, care should be taken to account for the way environmental changes will affect the material. In addition to considering such direct effects as weathering of surfaces, the designer should consider how a material will look against the changing seasonal background of the environment. As much as possible, colors and materials should enable the building to blend in against both a stark winter environment and the green surroundings of spring.

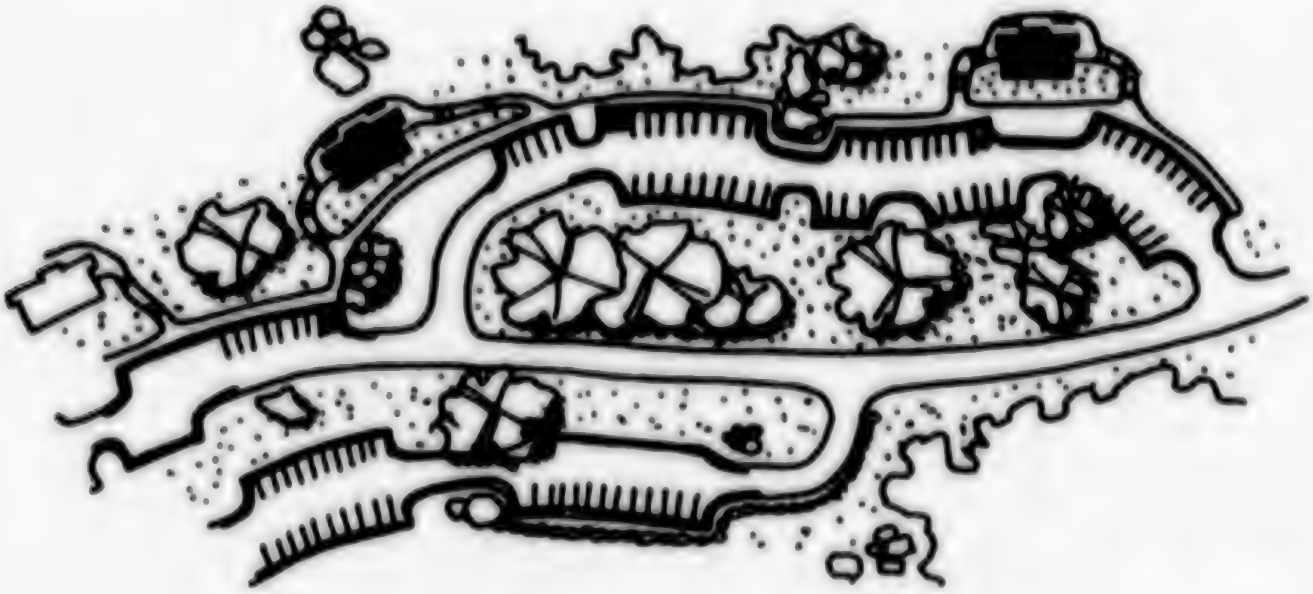
Exterior surface treatments should, in general, encourage natural weathering. Clear or semi-transparent stains are preferable to opaque stains. Since paint does not weather as well, painted surfaces may be confined to trim and casings at building openings and protected locations. Accents should be just that--they should harmonize with the base color, and be confined to small surfaces.

LANDSCAPE DETAILS

PARKING

Parking is potentially the most damaging of all manmade intrusions into the natural environment. Parking design must be a well-thought-out endeavor.

Locate parking areas away from the view. Parked automobiles should not be visible upon entering a site, nor should they detract from important views from within a building. The size of the parking area and the number of vehicle spaces should be carefully evaluated to avoid oversizing the parking for its intended use and expected volume of visitation. Break large lots up into smaller elements by providing a primary lot close to the building entrance, connected to one or more well-screened overflow lots.



Layout should conform to existing topography, stands of trees, and rock outcrops. Define edges and confine pedestrian access to walkways to prevent damage to surrounding natural landscape.

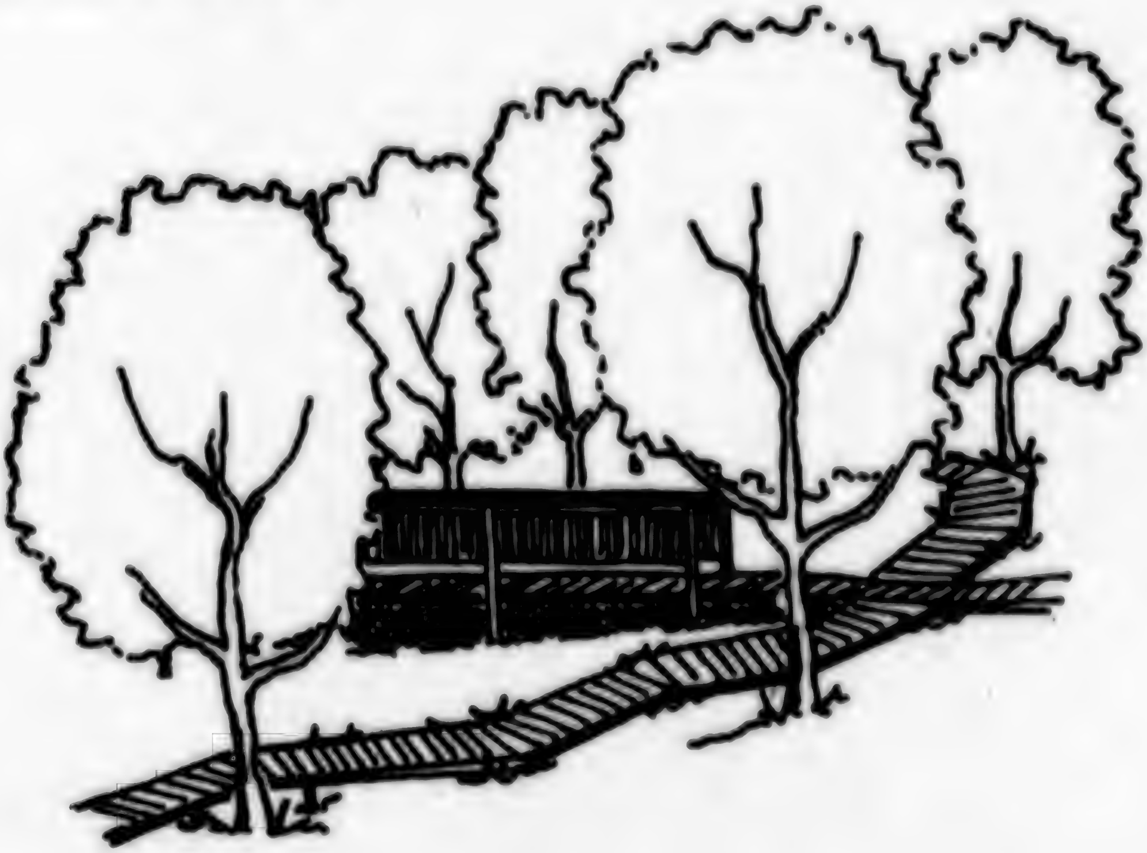
Parking should be located on the flattest available land to minimize the need for grading. When grading is necessary, cuts and fills must be kept to a minimum and cuts may be sealed by rock work to limit the impact of the work. Drainage in parking areas should take into account passengers' access to the vehicle as well as the overall drainage concept of the parking area.

WALKWAYS, STEPS, AND RAMPS

Walkways are also an intrusion into the natural landscape. An effort should be made to minimize damage to landscape, both ecological and visual. Respect for the natural environment is expressed in the thoughtful placement and character of walkways. Designs and installations of ramps and walkways must also comply with Federal standards on handicapped accessibility (see Bibliography) without sacrificing the principle of minimal intrusion. The design of ramps, railings, and other devices should be such that they are an integral part of the landscape and the building.

Nature should be allowed to dominate. Paths should generally follow contours of existing topography and be organic rather than geometric in layout. Leave breathing space around trees, creeks, rocks, and other natural features. Paths should be laid out in a convenient and logical manner to prevent pedestrians from crossing protected natural areas.

Avoid interrupting natural drainage wherever feasible. Where a swale or creek must be crossed, consider using a raised bridge. Where access to a delicate landscape is to be provided, consider using raised walkways.



EXTERIOR LIGHTING

The goal for exterior lighting should be discretion and subtlety. Illuminate only what needs to be lit for safe movement between buildings and their attendant services, such as parking. Care should be exercised with interior lighting so that light does not spill out from windows onto surrounding spaces, nor should the interior light source be seen from afar.

In parking lots consider that auto headlights are an element in lighting the parking area. The fixed lighting elements in the parking lot should locate entrances to the parking area, and the passenger's path from the parking lot to the destination should be lighted by shielded walk lights for guidance and direction.

The design of the light source itself must be appropriate to the building's character. Metal surfaces should blend with their surroundings with close attention to color selection. The height of the fixture should be appropriate to the functional cone of the light, keeping in mind that the goal is not to illuminate the whole parking lot, but to announce entrances, and achieve safety in movement.

The color of the light source should also be taken into consideration. Exterior building lighting and exterior site lighting should be of compatible color, tone, and intensity.

Buildings should confine exterior lighting to entrances, walkways, and service areas. It is important that the source of all lighting be shielded from view. The intensity of illumination should not be a distraction from the enjoyment of night in the park. Where safety or design require the illumination of pathways, for example, low lights such as step lights should be introduced.

SERVICE YARDS, WALLS, AND FENCES

Service functions create traffic and noise that should be confined and concealed from the public view. A few suggestions are:

1. Service areas should be connected to main roads by separate driveways. Keep service vehicles away from main entrances.

2. Service yards should be concealed and separated from the natural landscape with walls or fences. Utility functions such as panel boards, propane tanks, and meters should also be screened and kept within the confines of the service area.

3. Consolidate service functions such as trash storage and removal, shipping and receiving, and maintenance operations into one service area.

GRADING AND DRAINAGE

The existing natural setting must be preserved during and after site and building construction. Existing grades and drainage patterns are a fundamental part of the River's natural setting.

The construction process can be more destructive to the land than the building itself. Construction zones, material stockpiling areas, and construction vehicle access and parking areas must all be confined to fixed, designated areas. Use barricades and barriers to protect trees, plants, and landscape features to be preserved.

New grading plans must be sensitive to, preserve where possible, and blend into the natural landforms and features of the area. Grading and construction practices that disturb natural features promote erosion and require extensive revegetation.

Careful fitting of roads, parking, and buildings to sites can minimize grading and excavation. Cuts and fills should be minimal, with naturally rounded tops and toes of slopes to diminish erosion. There should be no grade changes within the drip line of any trees to be preserved.

A site's natural drainage pattern is the result of its topography and vegetation. Wherever possible, this drainage pattern should be preserved. Improper drainage affects not only the development at hand but also adjoining sites, and must be avoided. Surface drainage systems such as swales, culverts, and retention basins are preferable to closed, underground systems. Where underground systems must be used, release points must be designed to prevent erosion.

REVEGETATION

Since it is a goal of national park architecture to blend in with the natural environment, it is important that every attempt be made to minimize damage to natural vegetation. When damage cannot be avoided, revegetation must be undertaken to restore the natural scene.

Revegetation should, to the greatest extent possible, recreate the earlier character of the site. Native plants should be used whenever possible in accomplishing this goal.

New plant materials should respect existing planting patterns. Trees, shrubs, and ground cover are usually found in groups of similar species, rather than alone or with a number of other species. Blending new plantings into existing landscape should be done so that all traces of construction-wrought damage will vanish in a few years.

RECENT DESIGN EXAMPLE

INTRODUCTION

The following is a design analysis of the Visitor Contact Facility at Tyler Bend. It is included in this study only as a recent example that attempts to incorporate some of the design principles found in these guidelines. This design does not necessarily embody all elements of the developed architectural theme nor should it be taken as a "cookbook" solution to future facility designs at Buffalo National River.

SITE

Located above the floodplain and the recreational activities of the area, the site takes advantage of pleasant views of Tyler Bend, focusing on the more undeveloped views of the riverway. Minimum grading of the site was used in setting the building on the brow of the bluff.

The structure and its associated decks and parking are tucked into the existing trees and slopes. The visitor facility is oriented to take advantage of the existing site configurations, views, seasonal solar gain, and natural light. The vehicular circulation was devised to maximize pedestrian safety while still providing a functional and pleasant approach to the facilities and surrounding parking.

STRUCTURE

The visitor center/ranger facility is a 4,800 square foot structure deriving its basic form and materials from the vernacular themes used historically in the area. The design intent was to create a contemporary, efficient facility which would blend with the natural environment and local surroundings yet not mimic them. The designers considered it important to draw from the past without being too eclectic and losing sight that this is a modern-day park service visitor facility. The facility was to be a source of pride for the National Park Service and for the surrounding community.

The metal roofing, plank siding, and stone foundation draw from the local building materials historically used in the vicinity and repeat the architectural themes established by earlier development at Tyler Bend. The roof form is a broken-gable, commonly seen in both the residential and the agricultural buildings of the area. The clerestory, although primarily for natural light, is reminiscent of the ventilators seen on barns in the surrounding region.

In elevation, the appearance of the observation deck draws from the "back porches" of the Ozarks; in plan, the deck extends beyond the rigid geometry of the structure to blend with the environment, encouraging the visitor into the activities and resources of the Tyler Bend area. The side elevations utilize stone to "anchor" the structure to the site.

The entrance of the building is designed to "read" to both vehicular and pedestrian traffic. Passing through the double doors into the lobby, visitors find themselves centered under the clerestory ceiling with a panoramic view of Tyler Bend laid before them. Framing this view is a massive stone fireplace. Visitor use spaces are readily accessible from this central point; administrative and support spaces are separated from the lobby. Both the public spaces and the administrative offices are oriented to the River, focusing upon the primary resource.

AREA SUBTHEMES

Each developed area in the national river should have its own architectural character while being consistent with parkwide architectural themes. A way to achieve this goal is to use similar materials in similar manners in all areas while incorporating slight element or form variations specific to each area. A discussion of architectural subthemes for the three major areas targeted for new development follows.

BUFFALO POINT

New designs at Buffalo Point do not need to mimic existing buildings in the area, but they should be sensitive to established architectural subthemes in trying to achieve architectural unity for the area. Designs of recent structures at Buffalo Point have incorporated several elements of older area structures, including relatively steep roof slopes, asphalt shingles, skylights, and board-and-batten siding. Utilizing some of these (and/or possibly other) common elements in new designs for the area would seem an appropriate way to maintain consistency in the area's architectural character.

PRUITT

New development at Pruitt has little architecture in the immediate area to draw from. It would seem that this area offers designers the most flexibility in establishing a new architectural subtheme. Future building designs at Pruitt could incorporate more unique forms and elements than those in other areas in the national river. New architecture in the area, however, should also make the effort to achieve consistency with parkwide architectural themes.

TYLER BEND

Tyler Bend is a newly developed area in the national river. The recent construction of a visitor contact facility (see Recent Design Example) and of campground comfort stations, though, have in effect established an architectural subtheme for the area. The "barn" architecture of the new structures, with their plank siding, metal roofing, stone wall facing, and clerestories should influence the designs of future structures in the area. Designers of future facilities at Tyler Bend (as well as other park areas) should keep in mind that the idea is to draw from the best elements of previous design examples without sacrificing new design goals.

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